NOTICE OF ALLOWANCE

Status of the claims

This action is in response to papers filed August 12, 2009.

The previous rejections in the office action dated April 14, 2009 are withdrawn. Claims 45, 79-95 and 99-100 have been allowed. Claims 1-44, 46-78 and 96-98 have been cancelled in view of a telephone interview with Mr. Amos on August 12, 2009.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Amos on August 12, 2009.

The application has been amended as follows:

Cancel claims 1-44, 46-78 and 96-98.

Allow claims 45, 79-95 and 99-100.

In the claims:

Claims 45, 82, 88, 95 and 99 are amended as follows:

1-44. (Cancelled).

45. (Currently Amended) A method of obtaining a full-length cDNA comprising:

(a) isolating a full-length mRNA;

(b) attaching a double-stranded DNA tag to the 5' end of the isolated mRNA wherein the DNA tag is covalently linked to a topoisomerase and wherein the topoisomerase is released upon attachment of the DNA tag, wherein the double-stranded DNA tag comprises an upper strand and a lower strand, wherein the ~~5'~~ upper strand comprises a 5' tail, and wherein the ~~3'~~ lower strand ~~of the DNA tag~~ comprises a 1 to 4 nucleotide overhang at its 5 ' end, wherein the ~~said~~ overhang has a sequence which is ~~will~~ complementary to and base pairs ~~pair~~ with ~~1 to 4~~ a sequence of 1-4 nucleotides at ~~nucleotides respectively, on~~ the 5' end of the isolated mRNA; ~~and~~

(c) ~~synthesizing the cDNA using the DNA tagged mRNA as a template by~~ contacting the DNA tagged mRNA from step (b) with a reverse transcriptase under the conditions which permit reverse transcription so as to thereby obtain ~~the~~ a DNA-RNA molecule; and

(d) subjecting the DNA-RNA molecule from step (c) to a polymerase chain reaction (PCR) so as to obtain the full-length cDNA.

46-78. (Canceled).

79. (Currently Amended) A method of obtaining a full-length cDNA comprising:

(a) isolating a full-length mRNA by employing an affinity purification material;

(b) decapping and dephosphorylating the isolated mRNA;

(c) attaching a double-stranded DNA tag to the 5' end of the decapped, dephosphorylated mRNA, wherein the DNA tag is covalently linked to a vaccinia DNA

topoisomerase and wherein the DNA tag comprises the sequences set forth in SEQ ID NO. 30 and 31;

(d) ~~synthesizing the cDNA using the DNA tagged mRNA as a template by~~ contacting the DNA tagged mRNA from step (c) with a reverse transcriptase under the conditions which permit reverse transcription so as to thereby obtain a DNA-RNA molecule; and;

(e) subjecting the DNA-RNA molecule from step (d) to a polymerase chain reaction (PCR) so as to obtain the full-length cDNA ~~amplifying the synthesized cDNA, wherein the amplification primers comprise an anti-coding sequence of the tag sequence (5') and a gene specific sequence (3'); and~~

~~(f) inserting the amplified cDNA into an expression vector~~ .

80. (Previously Presented) The method of claim 45, wherein the mRNA is isolated by employing an affinity purification material.

81. (Previously Presented) The method of claim 80, wherein the mRNA to be isolated comprises an affinity purification tagged cap structure.

82. (Currently Amended} The method of claim 80, wherein the affinity purification material ~~tag~~ is a biotin moiety, chitin binding domain or a glutathione-S-transferase moiety.

83. (Previously Presented) The method of claim 80, wherein the affinity purification material comprises a solid support complexed with phenylboronic acid, streptavidin, avidin, chitin or glutathione.

84. (Previously Presented) The method of claim 83, wherein the solid support is magnetic beads or sepharose.

85. (Previously Presented) The method of claim 45, wherein the mRNA is isolated from plant cells or animal cells.

86. (Previously Presented) The method of claim 85, wherein the animal cells are mammalian cells or insect cells.

87. (Previously Presented) The method of claim 45, wherein the mRNA is decapped and dephosphorylated after isolation.

88. (Currently Amended) The method of claim 87, wherein the mRNA a decapped by an enzyme ~~enzymatically~~ or by chemical treatment.

89. (Previously Presented) The method of claim 88, wherein the enzyme is a pyrophosphatase.

90. (Previously Presented) The method of claim 88, wherein the chemical treatment is periodate oxidation and beta elimination.

91. (Previously Presented) The method of claim 87, wherein the mRNA is dephosphorylated using alkaline phosphatase.

92. (Previously Presented) The method of claim 45, wherein the DNA tag comprises a recognition site for a type I topoisomerase.

93. (Previously Presented) The method of claim 92, wherein the DNA tag further comprises a recognition site for a site-specific restriction endonuclease.

94. (Previously Presented) The method of claim 92, wherein the type 1 topoisomerase is vaccinia DNA topoisomerase.

95. (Currently Amended) The method of claim 92, wherein the DNA tag comprises the sequences set forth in SEQ ID NO. 30 and 31, wherein N in SEQ ID NO. 31 represents the 1 to 4, nucleotide overhang at the 5' end of the lower ~~3'~~ strand, and ~~of which~~ each nucleotide in N is, independently, an adenosine moiety, a guanosine moiety, a cytosine moiety or a thymidine moiety.

96. (Canceled)

97. (Canceled)

98. (Canceled)

99. (Currently Amended) The method of claim 45, ~~98,~~ further comprising inserting the full-length ~~amplified~~ cDNA into an expression vector.

100. (Previously Presented) The method of claim 45, wherein the DNA tag is a linearized expression vector.

REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance:

Art of the record discussed: Kato et al.

Kato et al teaches a method of obtaining full-length cDNA comprising isolating full-length mRNA and further teaches attaching a single stranded DNA-RNA tag sequence to the isolated full length mRNA. Kato et al also teaches contacting-the DNA tagged mRNA with a reverse transcriptase under the conditions which permit reverse transcription so as to thereby obtain a DNA-RNA molecule. However, prior art taken alone or in combination do not suggest or obviate attaching a double-stranded DNA tag to the 5' end of the isolated mRNA wherein the DNA tag is covalently linked to a topoisomerase and wherein the topoisomerase is released upon attachment of the DNA tag. Furthermore, prior art of the record do not suggest the double-stranded DNA tag

comprises an upper strand and a lower strand, wherein the upper strand comprises a 5' tail, and wherein the lower strand comprises a 1 to 4 nucleotide overhang at its 5 ' end, wherein the overhang has a sequence which is complementary to and base pairs with a sequence of 1-4 nucleotides at the 5' end of the isolated mRNA. Prior art of the record also do not teach the DNA tag comprising claimed SEQ ID NO 30 and 31 except for the patent 6,653,106. The instant application is continuation of the '106 patent.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Claims 45, 79-95 and 99-100 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Narayan K. Bhat whose telephone number is (571)-272-5540. The examiner can normally be reached on 8.30 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James (Douglas) Schultz can be reached on (571)-272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Narayan K. Bhat

Examiner, Art Unit 1634

/JD Schultz/

Supervisory Patent Examiner, Art Unit 1635